

# **EXHIBIT 37**



## RBC Capital Markets

December 20, 2018

# Alphabet Inc.

## The Next Frontier

**Our view:** While Google remains overwhelmingly an Advertising Revenue company (we estimate 85% of the company's 2018 revenue comes from Advertising), the company has also developed other key businesses. And Hardware, which is included in Alphabet's Other Revenue line, is one of those other key businesses. Here's a deep dive. Reit Outperform.

### Key points:

**Four Key Takeaways:** **1)** Google has over the past few years made hardware development and innovation a bigger strategic and engineering focus for the company, via both acquisitions (Nest, HTC) and organic efforts; **2)** The result has been a relatively impressive slate of products (e.g. the Pixel 3 Smartphone, the Nest Learning Thermostat, Google Home SmartSpeakers, and Chromecast SmartTV devices) that have gained critical success and are starting to gain material commercial traction; **3)** In FY18, we estimate that Google's Hardware segment will generate a combined \$8.8B in revenue (6% of Gross Revenue) and \$3.0B in gross profits (4% of Gross Profits), rising to \$19.6B (8%) and \$6.1B (5%), respectively, by 2021; and **4)** We believe that Google's growing Hardware segment has also generated significant strategic benefits for the company, including increased ad monetization opportunities, an end-to-end, controlled method of delivering software/product updates to consumers, and a platform to develop and deploy AI advancements.

**Google Home** has been a notable success and has gained material traction in the U.S. according to our annual survey of U.S. Internet households, which has shown a broad, dramatic increase in Smart Speaker adoption. In December 2018, 23% of respondents had a Google Home, and we estimate that each household has ~1.7 devices leading to ~43MM Google Home devices currently installed in the U.S. Given the later International rollout, we believe that as of '18 there are ~9MM Google Home devices installed in other Google Home markets. All in, we estimate that in 2018 Google Home generated ~\$3.4B in Revenue, and could grow to ~\$8.2B by 2021.

**Reiterate Outperform:** Hardware remains a small, but important part of Google given its potential as a key growth avenue and strategic hedge for the company. The largest Ad Revenue-based 'Net business has averaged 23% growth for 35 (keep counting 'em) straight quarters & shows no signs of slowing. Despite a \$130B revenue run-rate. And GOOGL has \$100B+ of net cash on its balance sheet -- dry powder should give investors extra confidence amid market turbulence. That's why we call Alphabet an Internet Staple. And the company's investments in Hardware, Cloud, Internet-connected Homes, and Autonomous Vehicles potentially set the company up for more years of premium growth & profits. There is regulatory risk, though we have yet to find evidence that regulations will adversely impact the usefulness of Google for consumers or advertisers.

RBC Capital Markets, LLC  
**Mark S.F. Mahaney**  
 (Analyst)  
 (415) 633-8608  
 mark.mahaney@rbccm.com  
**Zachary Schwartzman**  
 (Senior Associate)  
 (415) 633-8651  
 zachary.schwartzman@rbccm.com

**Michael Chen** (Associate)  
 (415) 633-8514  
 michael.chen@rbccm.com  
**Shweta Khajuria, CFA** (AVP)  
 (415) 633-8631  
 shweta.khajuria@rbccm.com

**Sector:** Internet

## Outperform

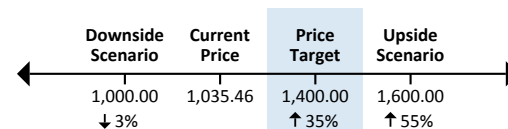
NASDAQ: GOOGL; USD 1,035.46

**Price Target USD 1,400.00**

### WHAT'S INSIDE

|   |   |
|---|---|
| <input type="checkbox"/> Rating/Risk Change | <input type="checkbox"/> Price Target Change      |
| <input type="checkbox"/> In-Depth Report    | <input type="checkbox"/> Est. Change              |
| <input type="checkbox"/> Preview            | <input checked="" type="checkbox"/> News Analysis |

### Scenario Analysis\*



\*Implied Total Returns

### Key Statistics

|                  |       |                    |           |
|------------------|-------|--------------------|-----------|
| Shares O/S (MM): | 703.0 | Market Cap (MM):   | 727,928   |
| Dividend:        | 0.00  | Yield:             | 0.0%      |
|                  |       | Avg. Daily Volume: | 1,912,253 |

### RBC Estimates

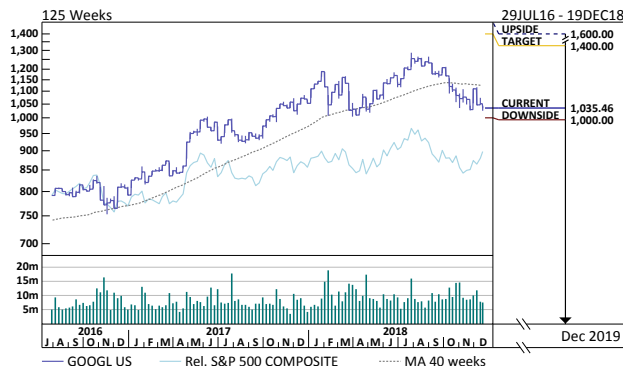
| FY Dec           | 2017A     | 2018E     | 2019E     | 2020E     |
|------------------|-----------|-----------|-----------|-----------|
| Revenue          | 89.2      | 109.7     | 132.0     | 157.8     |
| EBITDA           | 43,476.0  | 50,073.0  | 55,951.0  | 64,624.0  |
| EPS, Ops Diluted | 26.83     | 59.77     | 56.59     | 66.04     |
| P/E              | 38.6x     | 17.3x     | 18.3x     | 15.7x     |
| Revenue          | Q1        | Q2        | Q3        | Q4        |
| 2017             | 20.1A     | 20.9A     | 22.3A     | 25.9A     |
| 2018             | 24.9A     | 26.2A     | 27.2A     | 31.4E     |
| 2019             | 30.2E     | 31.6E     | 32.6E     | 37.6E     |
| EBITDA           | 2017      | 2018      | 2019      | 2020      |
| 2017             | 10,080.0A | 10,496.0A | 11,363.0A | 11,537.0A |
| 2018             | 11,444.0A | 12,405.0A | 12,895.0A | 13,329.0E |
| 2019             | 12,656.0E | 13,951.0E | 14,482.0E | 14,861.0E |

All values in USD unless otherwise noted.



## Target/Upside/Downside Scenarios

Exhibit 1: Alphabet Inc.



Source: Bloomberg and RBC Capital Markets estimates for Upside/Downside/Target

## Target price/base case

Our \$1,400 PT and 2020 valuation framework is based on a blended average of EV/ Adj. EBITDA and GAAP P/E. We arrive at \$1,400 by applying a 13x Target Multiple on 2020 EBITDA of \$64.6B and 25x Target Multiple on 2020 GAAP EPS of \$55.44. We note that these target multiples are largely in-line with the current multiple the stock is trading on our 2018 estimates. Our price target and the implied return support our Outperform rating.

## Upside scenario

In our upside scenario, we think the commercial launch of Waymo in Phoenix at the end of the year serves as a catalyst for the stock in the near/medium term, leading to a potential rerating in GOOGL's multiple. In this scenario, we apply higher P/E (27x vs. 25x) and EV/EBITDA (15x vs. 13x) multiples to our earnings to arrive at our \$1,600 upside scenario.

## Downside scenario

In our downside scenario, Alphabet struggles with the transition to mobile, seeing CPCs decline further without a commensurate increase in Paid Clicks. TAC also increases steadily as Google relies more on Partner sites/apps to gain traffic. We apply a lower P/E multiple to arrive at our \$1,000 downside scenario.

## Investment summary

Our Outperform rating on Alphabet is based on several key factors:

**1) Still Significant Secular Growth for Internet Advertising:**

We estimate that Global Internet Ad spend was approximately \$200B in 2017 and Global Net Ad spend will grow mid-teens. That still makes the Internet a sub-40% Media channel in terms of Ad Spend on a global basis, and with incremental Mobile Internet usage surging and TV Ad Budgets likely beginning to tip online, we see still significant secular growth ahead.

**2) Very Strong Market Share in Its Core Search Business:**

Google has long been the major leader in Search Advertising, accounting for 70%+ of Global Search Ad Revenue. At the margin, its market share has continued to increase, with its very strong position in Mobile and its ongoing innovation likely to continue to expand that share incrementally for the foreseeable future.

**3) Leading and Growing Market Share in Other Internet Advertising Segments:**

We estimate that Google is one of the largest Display Advertising companies on the Net. And we estimate that Google's key YouTube asset generated ~\$15B in Revenue in 2017, positioning Google extremely well for the strong growth in Video Advertising.

**4) Significant Competitive Moats:**

We believe that through scale, aggressive product innovation, and very substantial investments in Capex (\$42B over the past five years) and R&D (\$33B over the past five years), Alphabet has established unusually deep competitive moats around its business.

**5) An Impressive Track Record of Innovation and Acquisition:**

While GOOGL management has been perceived as opaque and non-Street-friendly (though this may be changing), the company has positioned itself well, through organic investments and acquisitions, for most of the major trends in Consumer Internet: Mobile, Video, Local... We have used the term "Shut Up & Deliver Management" to describe (in a positive way, really) the management teams of AMZN and PCLN. The label works with GOOGL as well.

**Risks Include:** 1) regulatory concerns; 2) competitive risk; 3) mobile monetization; and 4) European macro exposure.



## Google Hardware Deep Dive

During the Q3 EPS call, Alphabet CEO Sundar Pichai specifically called out Google's hardware segment as a material new growth driver and highlighted several new key product launches. That got us to wondering... So we went back and reviewed a Google Hardware report we had published in December 2015 (in the pre-FANG era) and decided it was time for an update. Here it is...

...and here are our Four Key Takeaways: 1) Google has over the past few years made hardware development and innovation a bigger strategic and engineering focus for the company, via both acquisitions (Nest, HTC) and organic efforts; 2) The result has been a relatively impressive slate of products (e.g. the Pixel 3 Smartphone, the Nest Learning Thermostat, Google Home SmartSpeakers, and Chromecast SmartTV devices) that have gained critical success and are starting to gain material commercial traction; 3) In FY18, we estimate that Google's Hardware segment will generate a combined \$8.8B in revenue (6% of Gross Revenue) and \$3.0B in gross profits (4% of Gross Profits), rising to \$19.6B (8%) and \$6.1B (5%), respectively, by 2021; and 4) We believe that Google's growing Hardware segment has also generated significant strategic benefits for the company, including increased ad monetization opportunities, an end-to-end, controlled method of delivering software/product updates to consumers, and a platform to develop and deploy AI advancements.

This is what CEO Sundar Pichai said about Google's Hardware business during the Q3 EPS call:

*Every year, we have a new opportunity to push the boundaries of computing. **Those experiences come to life in our Made by Google hardware, which combines the latest advances in software, hardware and AI.** Our third generation is our best yet. It includes The Pixel 3, Google Home Hub, Pixel Slate tablet and more. With the Pixel 3, we've used AI to create a best-in-class camera with new features like top shot that make it so you never miss a shot. If your timing wasn't perfect, the camera will suggest a better frame and give you the option to save it. And Night Sight will help you take really good pictures even in bad light. Pixel 3 also has a custom security chip called Titan M. It was built to secure Google's own datacenters and now we bring it to our users. We also released Google Home Hub, our first smart speaker with a screen. It shows your morning commute, lets you control your smartphone and gives you hands-free help in the kitchen. There is also Pixel Slate, Chrome OS reimaged as a tablet with all the great apps from the Play Store.*

The high-level takeaway for us is that while Google remains overwhelmingly an Advertising Revenue company (we estimate 85% of the company's 2018 revenue comes from Advertising), the company has also developed other key businesses. ([Please see our deep dive on Waymo on 7/10/18](#)). And Hardware, which is included in Alphabet's Other Revenue line, is one of those other key businesses.

All in, we estimate that Google's Hardware suite of products (Pixel, Home, Nest, Chromecast) will generate in 2018 approximately \$8.8B in revenue and \$3.0B in gross profits and that these will amount to 6% of the company Gross Revenue and 4% of the company's Gross Profits. And by 2021, we estimate that Google Hardware will generate \$19.6B in revenue and \$6.1B in gross profits, accounting for 8% of the company's Gross Revenue and 5% of the company's Gross Profits.

We also believe that Google enjoys significant strategic benefits from having a material hardware presence, such as increased ad monetization opportunities, an end-to-end, controlled method of delivering software updates to consumers, and a broad platform for AI development. Additionally, we note Google's hardware presence helps promote overall



Internet adoption (which is a distinct positive for an Internet Utility) and helps hedge Google from being boxed out of industry Mobile hardware design developments.

Below are our summary estimates for Google's Hardware Revenue and Gross Profit contributions, broken down by product line. And after that, we dig into each of the product lines. Here we go.

#### Exhibit 2: Hardware Revenue & Gross Profit Contributions

| Hardware Contribution (in M)   | 2016           | 2017           | 2018           | 2019            | 2020            | 2021            |
|--------------------------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|
| Pixel Revenues                 | \$1,233        | \$2,403        | \$3,423        | \$4,373         | \$5,678         | \$6,915         |
| Nest Revenues                  | \$520          | \$726          | \$980          | \$1,284         | \$1,656         | \$2,087         |
| Home Revenues                  | \$197          | \$1,470        | \$3,390        | \$6,577         | \$7,512         | \$8,156         |
| Chromecast Revenues            | \$560          | \$744          | \$998          | \$1,338         | \$1,793         | \$2,399         |
| <b>Total Hardware Revenues</b> | <b>\$2,509</b> | <b>\$5,343</b> | <b>\$8,791</b> | <b>\$13,572</b> | <b>\$16,639</b> | <b>\$19,556</b> |
| Y/Y Growth                     | --             | 113%           | 65%            | 54%             | 23%             | 18%             |
| % of Other Revenues            | 25%            | 36%            | 45%            | 54%             | 53%             | 50%             |
| % of Total Gross Revenue       | 3%             | 5%             | 6%             | 8%              | 9%              | 8%              |

| Hardware Contribution (in M)        | 2016         | 2017           | 2018           | 2019           | 2020           | 2021           |
|-------------------------------------|--------------|----------------|----------------|----------------|----------------|----------------|
| Pixel Gross Profit                  | \$678        | \$1,297        | \$1,780        | \$2,186        | \$2,782        | \$3,250        |
| Nest Gross Profit                   | \$130        | \$182          | \$245          | \$321          | \$414          | \$522          |
| Home Gross Profit                   | \$49         | \$368          | \$847          | \$1,644        | \$1,878        | \$2,039        |
| Chromecast Gross Profit             | \$56         | \$74           | \$110          | \$147          | \$197          | \$288          |
| <b>Total Hardware Gross Profits</b> | <b>\$913</b> | <b>\$1,921</b> | <b>\$2,982</b> | <b>\$4,299</b> | <b>\$5,272</b> | <b>\$6,098</b> |
| Y/Y Growth                          | --           | 110%           | 55%            | 44%            | 23%            | 16%            |
| Blended Gross Margin                | 36%          | 36%            | 34%            | 32%            | 32%            | 31%            |
| % of Total Gross Profit             | 2%           | 3%             | 4%             | 5%             | 5%             | 5%             |

Source: RBC Capital Markets Estimates, Company Reports, Industry Sources

### Pixel


In October 2016, Google released the 1<sup>st</sup> generation of its Pixel smartphone. The release included two versions, the Pixel and the Pixel XL with a larger screen. The first generation of the Pixel was manufactured by HTC. But in September 2018, right before the release of the 2<sup>nd</sup> generation Pixel smartphones, Google announced the \$1.1B acqui-hire of the engineering team at HTC that had manufactured the Pixel phones, signaling the company's increased focus on its hardware division. Now in its 3<sup>rd</sup> generation, the Pixel 3 retails at \$799 while the Pixel 3 XL retails at \$899. And just last week, Google released the Pixel Slate, a tablet powered by Chrome OS.



## RBC Capital Markets

Internet  
Alphabet Inc.

Exhibit 3: Current Pixel Suite

| Google Pixel           | 2018    |  |
|------------------------|---------|---|
| Pixel 3                | \$799   |   |
| Pixel 3 XL             | \$899   |   |
| Pixel Slate (mid tier) | \$799   |   |
| Pixelbook (mid tier)   | \$1,199 |   |

Source: Company Documents, Industry Sources, The Verge

Reviews for the Pixel 3 have been notably positive since its release. In particular, its top-notch camera and the seamless integration with Google Assistant stand out amongst peers. CNET calls The Pixel 3 the best Android phone of 2018. And here's that review, if you don't want to take our word for it:

Exhibit 4: CNET's Pixel 3 Review

**A Holiday Gift Guide Editors' Pick** ADD TO MY LIST

**The Good:** The Pixel 3 takes brilliant photos, even in super low-light, with its single rear lens, and it can capture wide selfie photos. It's water-resistant, has wireless charging, and it can screen unwanted calls.


**The Bad:** This phone doesn't have expandable memory or a headphone jack. The shot-to-shot camera delay can be sluggish in certain modes.

**The Bottom Line:** The Pixel 3's truly exceptional cameras and AI-powered call screening give it an edge on the other great phones in 2018's crowded winners' circle.

★★★★★

**8.9**  
OVERALL

| Category        | Score |
|-----------------|-------|
| DESIGN          | 10    |
| PERFORMANCE     | 10    |
| REPRODUCIBILITY | 9     |
| QUALITY         | 9     |
| BATTERY         | 8     |



Source: CNET





Exhibit 5: Google's Pixel 3



Source: CNET

Google's new Pixel Slate, an iPad competitor that runs Chrome OS, has received mixed initial reviews. This is the first tablet from Google that runs Chrome OS instead of Google's Android operating system. According to reviews from The Verge and Android Authority, the Pixel Slate has great hardware and is aesthetically pleasing. However, software integration still could use some improvements, which we assume Google will deliver over time.

Exhibit 6: Google's Pixel Slate (Chrome OS Tablet)



Source: Android Authority



## Exhibit 7: Google's Pixel Slate (Chrome OS Tablet) Engadget Review

**Engadget Score**

Google  
Pixel Slate

**Pros**

- Gorgeous display
- Good battery life
- Excellent speakers
- Full desktop browser on a tablet is extremely useful

**Cons**

- Performance as a tablet is subpar
- Android apps on Chrome OS are still a confusing (and sometimes buggy) mess
- Very expensive
- Pricey keyboard folio doesn't work well on your lap

**Summary**

Based purely on its hardware, the Pixel Slate is impressive. Unfortunately, the whole package is hampered by a confusing software experience and a high price. If you're looking for a Chrome device, there are plenty of less expensive options that work just as well, if not better.

Source: Engadget

Based on industry data and our estimates, we believe Google sold 1.7M Pixels in 2016, with an ASP of \$725 and 55% gross margins, the first year the Pixel was released. We forecast \$3.4B in Pixel revenue in 2018 and close to \$1.8B in Gross Profit contribution. Through 2021, we forecast Google will earn 30bps of yearly market share expansion in the Android Premium Smartphone market, leading to 8.3M in Pixel sales, \$6.9B in Pixel revenues, and a Gross Profit of \$3.3B. We have discussed these assumptions with the RBC Hardware team, who believe these are ballpark reasonable. For context, Samsung has >20% of global smartphone market share, per Statista and IDC. And per a report by Counterpoint Research, Samsung has 24% market share of the premium phone segment. Per Gartner 2018 estimates, we can extrapolate a 53% market share of the Android Premium Phone market. If half of these are Galaxy phones, we estimate Samsung's Galaxy phones would represent >25% market share of the Android Premium Phone Segment... materially higher than where we estimate Pixel is today, suggesting ample runway for Pixel gains. We note our Pixel estimates do not include the newly introduced Pixel Slate or Pixelbooks.





## RBC Capital Markets

Internet  
Alphabet Inc.

Exhibit 8: RBC Pixel Smartphone Estimates

| Premium Phones (in M)     | 2016           | 2017           | 2018           | 2019           | 2020           | 2021           |
|---------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Total (Gartner)           | 554            | 588            | 605            | 627            | 640            | 661            |
| Android (Gartner)         | 297            | 251            | 276            | 296            | 324            | 347            |
| Pixel Android Marketshare | 0.6%           | 1.2%           | 1.5%           | 1.8%           | 2.1%           | 2.4%           |
| <b>Pixel</b>              | <b>1.7</b>     | <b>3.1</b>     | <b>4.2</b>     | <b>5.3</b>     | <b>6.8</b>     | <b>8.3</b>     |
| ASP                       | \$725          | \$775          | \$815          | \$825          | \$835          | \$830          |
| <b>Revenue</b>            | <b>\$1,233</b> | <b>\$2,403</b> | <b>\$3,423</b> | <b>\$4,373</b> | <b>\$5,678</b> | <b>\$6,915</b> |
| Y/Y                       | --             | 95%            | 42%            | 28%            | 30%            | 22%            |
| Gross Margin              | 55%            | 54%            | 52%            | 50%            | 49%            | 47%            |
| <b>Gross Profit</b>       | <b>\$678</b>   | <b>\$1,297</b> | <b>\$1,780</b> | <b>\$2,186</b> | <b>\$2,782</b> | <b>\$3,250</b> |

Source: RBC Capital Markets Estimates, Company Commentary & Documents, HIS Markit Teardown



## Nest

Nest, a suite of smart home products Google acquired in 2014 for \$3.2B, was recorded in Google's Other Bets segment until it became part of Other Revenues in Q1:18. From the restated financials, we can back into \$726M in revenues for Nest in 2017 and a (\$621M) profit loss. We forecast Nest will approach \$1B in revenues this year, and greater than \$2.0B in revenues by 2021. These forecasts echo our projections three years ago from our [December 1<sup>st</sup> 2015 Google report](#):

*While we see the potential for substantial value creation out of efforts to develop autonomous vehicles (Google Self-Driving Car Project) and "combat aging" (Calico), we believe that Nest and Google Fiber have business models already in place to generate \$1B+ revenue streams. It's also key to point out that the Other Bets segment is attacking TAMs that are probably well over \$250B in total (\$60B+ Smart Home, \$80B+ U.S. Cable, \$40B+ Autonomous Cars and \$80B+ Aging), creating long-term option value for Alphabet that is likely not fully reflected in GOOGL's valuation.*

- RBC Internet Team, December 1<sup>st</sup> 2015

### Exhibit 9: RBC Nest Estimates

| Nest Products (in M) | 2016  | 2017    | 2018  | 2019    | 2020    | 2021    |
|----------------------|-------|---------|-------|---------|---------|---------|
| Revenue              | \$520 | \$726   | \$980 | \$1,284 | \$1,656 | \$2,087 |
| Y/Y                  | --    | 40%     | 35%   | 31%     | 29%     | 26%     |
| Gross Margin         | 25%   | 25%     | 25%   | 25%     | 25%     | 25%     |
| Gross Profit         | \$130 | \$182   | \$245 | \$321   | \$414   | \$522   |
| EBIT                 |       | (\$621) |       |         |         |         |

Source: Company Documents, RBC Capital Markets Estimates, Industry Sources

Let's take a step back here. What even is Nest? Google's Nest Product Suite are smart home products which use machine learning to learn your habits to automatically control the temperature while saving energy and money on your heating (10%-12% on average) and cooling (15% on average) bills. It generally knows when you're away and will adjust the temperature accordingly. And you can also control it from anywhere with an internet connection. Nest's main competitors are Ecobee and Honeywell. Nest also offers a range of home security products, like Nest Cam.

### Exhibit 10: Current Nest Suite

| Nest                        | 2018  |
|-----------------------------|-------|
| Learning Thermostat         | \$249 |
| Thermostat E                | \$169 |
| Nest Cam (indoor & outdoor) | \$199 |
| Nest Cam IQ (indoor)        | \$299 |
| Nest Cam IQ (outdoor)       | \$349 |
| Nest Hello                  | \$229 |
| Nest Secure Alarm System    | \$399 |
| Nest Yale Lock              | \$249 |
| Nest Protect                | \$119 |

Source: Company Documents, RBC Capital Markets Estimates, Google Images



## RBC Capital Markets

Internet  
Alphabet Inc.

### Exhibit 11: Current Nest Suite



Source: Company Documents, RBC Capital Markets Estimates, Google Images

The 3<sup>rd</sup> generation Nest Learning Thermostat offers several new features. Previous Nest thermostats relied on near-field sensors (~3-foot range) to recognize motion activity, while the new version uses a far-field sensor for “Farsight.” Farsight recognizes someone’s presence from up to 20 feet away, and lets them see the thermostat’s target temperature or the current time in analog or digital modes.

### Exhibit 12: Nest Learning Thermostat (3<sup>rd</sup> Gen) CNET Review



Source: CNET Review

Nest Suite also includes Cam IQ Security Cameras for inside (with Google Assistant built-in) and outside your home. Nest Cam IQ utilizes strong processing power to do multiple things. It can distinguish a person from an object and even recognize faces with Nest Aware. The Camera sports a 4K sensor with HDR and intelligent imaging from Google. If an intruder enters your home, a powerful speaker can scare them off. And it will also record everything and cancel out other noises and suppress echoes.



Exhibit 13: Google Nest Cam IQ



Source: Company Documents and Company Website

Additionally, consumers have the option of buying a Nest Aware subscription that will allow continuous recording and saves all information into the cloud. Below are the tiered pricings for subscriptions:

Exhibit 14: Nest Aware Subscriptions

Nest Aware [Subscribe](#)

### A subscription in three sizes.

| 5-day  | 10-day  | 30-day  |
|--|---|---|
| <ul style="list-style-type: none"> <li>5-day video history</li> <li>24/7 continuous-recording</li> <li>Intelligent alerts</li> <li>Clips and timelapses</li> <li>Activity Zones</li> </ul> | <ul style="list-style-type: none"> <li>10-day video history</li> <li>24/7 continuous-recording</li> <li>Intelligent alerts</li> <li>Clips and timelapses</li> <li>Activity Zones</li> </ul> | <ul style="list-style-type: none"> <li>30-day video history</li> <li>24/7 continuous-recording</li> <li>Intelligent alerts</li> <li>Clips and timelapses</li> <li>Activity Zones</li> </ul> |
| <p>\$5 a month</p> <p>\$50 a year</p>  | <p>\$10 a month</p> <p>\$100 a year</p>   | <p>\$30 a month</p> <p>\$300 a year</p>   |

Save up to 50% on Nest Aware for additional Nest Cams.

Source: Company Documents &amp; Website



## RBC Capital Markets

Internet  
Alphabet Inc.

### Google Home

The Google Home smart speaker has been a real success and has seen material traction in the U.S. so far. The device is powered by Google Assistant and was released in late 2016 as a competing product to Amazon's Alexa. The following year, Google released the Home Max (high-end speaker) and the Home Mini. By the end of 2017, Google Home was available in the U.S., the UK, France, Canada, Australia, Japan, and Germany. It is also currently available in Italy, Austria, Ireland, Singapore, Spain and India. Google also released the Home Hub in October 2018.

Exhibit 15: Current Google Home Suite

| Google Home | 2018  |
|-------------|-------|
| Home        | \$129 |
| Home Mini   | \$49  |
| Home Max    | \$399 |
| Home Hub    | \$149 |



Source: Company Documents, RBC Capital Markets Estimates, Industry Sources

Exhibit 16: Google Home CNET Review

**A Holiday Gift Guide Editors' Pick** View on CNET

**The Good** The Google Home accurately answers almost any question you can think to ask. It's loaded with cool features that allow it to make calls, control your smart home, help out in the kitchen and more. (Even sounds pretty good when playing music and controlling your TV.)

**The Bad** Google's miniature smart speaker still can't do a couple of basic tasks such as take notes. Its sound quality won't be good enough if you're an audiophile. The Google Home has caught up but still doesn't work with as many smart home gadgets as the Amazon Echo.

**The Bottom Line** The Google Home is a great smart speaker with a ton of capabilities, but you have so many smart speaker options at this point, we're less inclined to recommend this well-balanced middle child.

**★★★★★**

**8.0** OVERALL

|               |   |
|---------------|---|
| DESIGN        | 8 |
| FEATURES      | 8 |
| PERFORMANCE   | 8 |
| PRICE/QUALITY | 8 |

Source: CNET Review





## RBC Capital Markets

Internet  
Alphabet Inc.

Exhibit 17: PC Mag Comparison of Smart Speakers

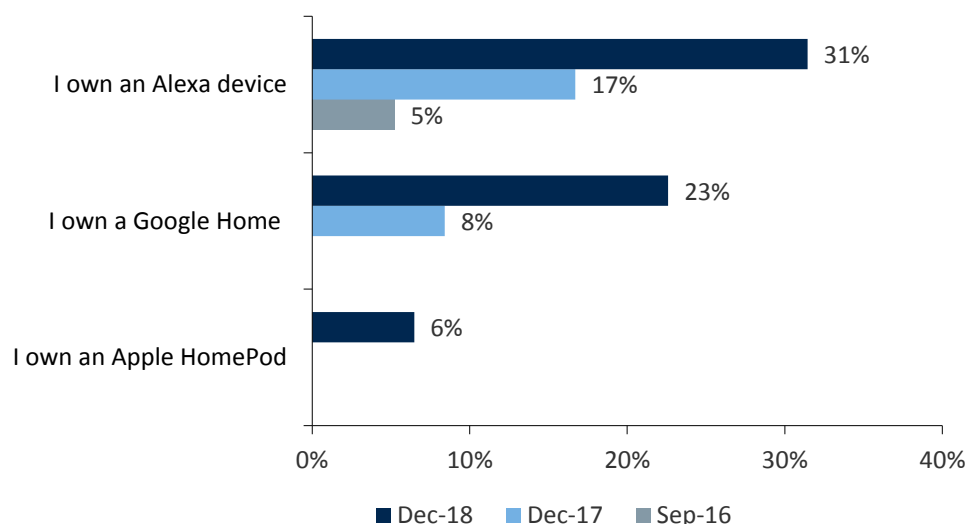
| Product              | Amazon Echo (2nd Gen, 2017) | Amazon Echo Dot (3rd Gen, 2018) | Amazon Echo Show (2nd Gen, 2018) | Google Home Max                      | JBL Link View            | Sonos Beam                   | Sonos One                               | Lenovo Smart Display (10-Inch) | Apple HomePod             | Amazon Echo Plus (2nd Gen, 2018) |
|----------------------|-----------------------------|---------------------------------|----------------------------------|--------------------------------------|--------------------------|------------------------------|---|--------------------------------|---------------------------|----------------------------------|
|                      |                             |                                 |                                  |                                      |                          |                              |   |                                |                           |                                  |
| Lowest Price         | \$69.99                     | \$29.99                         | \$179.99                         | \$399.00                             | \$249.95                 | \$399.00                     | \$179.00                                | \$249.99                       | \$349.00                  | \$119.99                         |
|                      | Amazon                      | Amazon                          | Amazon                           | Walmart                              | Harman Audio             | Amazon                       | Amazon                                  | Lenovo                         | Apple Store               | Amazon                           |
|                      | SEE IT                      | SEE IT                          | SEE IT                           | SEE IT                               | SEE IT                   | SEE IT                       | SEE IT                                  | SEE IT                         | SEE IT                    | SEE IT                           |
| Editors' Rating      | ★★★★★<br>EDITORS' CHOICE    | ★★★★★<br>EDITORS' CHOICE        | ★★★★★<br>EDITORS' CHOICE         | ★★★★★<br>EDITORS' CHOICE             | ★★★★★<br>EDITORS' CHOICE | ★★★★★<br>EDITORS' CHOICE     | ★★★★★<br>EDITORS' CHOICE                | ★★★★★<br>EDITORS' CHOICE       | ★★★★★<br>EDITORS' CHOICE  | ★★★★★<br>EDITORS' CHOICE         |
| Best For             | Amazon Alexa Users          | Entry level Alexa Users         | Amazon fans                      | Audio-Focused Google Assistant Users | Google Assistant users   | Alexa-Acclimated Audiophiles | Amazon Alexa and Google Assistant Users | Google Fans                    | Apple-centric Audiophiles | Amazon fans with smart homes     |
| Physical Connections | 3.5mm                       | 3.5mm                           | None                             | 3.5mm, USB-C                         | None                     | Optical, HDMI                | None                                    | HDMI                           | None                      | 3.5mm                            |
| Bluetooth            | ✓                           | ✓                               | ✓                                | ✓                                    | —                        | —                            | —                                       | —                              | —                         | ✓                                |
| Wi-Fi                | ✓                           | ✓                               | ✓                                | ✓                                    | ✓                        | ✓                            | ✓                                       | ✓                              | ✓                         | ✓                                |
| Multi-Room Support   | ✓                           | ✓                               | ✓                                | ✓                                    | ✓                        | ✓                            | ✓                                       | ✓                              | ✓                         | ✓                                |
| Portable             | —                           | —                               | —                                | —                                    | —                        | —                            | —                                       | —                              | —                         | —                                |
| Speakerphone         | —                           | ✓                               | —                                | ✓                                    | —                        | —                            | —                                       | —                              | ✓                         | ✓                                |
| Voice Control        | Amazon Alexa                | Amazon Alexa                    | Amazon Alexa                     | Google Assistant                     | Google Assistant         | Amazon Alexa                 | Amazon Alexa                            | Google Assistant               | Apple Siri                | Amazon Alexa                     |

Source: PC Mag

We surveyed 1,800+ U.S. Internet users this month and saw robust growth across Alexa AND Google Home devices, with 23% of respondents owning a Google Home compared to 8% last December, and 31% of respondents owning an Alexa device compared to 17% in December 2017. These results indicate penetration levels almost doubling Y/Y for Alexa and almost tripling Y/Y for Google Home. Overall, these survey results indicated that Alexa still remains the clear leader in this category, though Google Home is quickly catching up.



Exhibit 18: Penetration Levels by Voice-Activated Device



Source: RBC Capital Markets; Survey Monkey, Alexa: Dec. '18: 1,775, Dec. '17 n=1,855, Sep. '16 n=1,645, Google: Dec. '18: 1,066, Dec. '17 n=1,567, Apple: Dec. '18: 1,806

Using the same methodology as we have used for our Alexa device forecasts, we estimate the addressable market and used our survey work to forecast Google Home penetration and sales. Our addressable market estimates are based on the total households of countries Google Home has been launched in, the Internet penetration of each country, and the date the Google Home suite was released in each country. We see a large opportunity for Google to capture market share overseas in the coming years, given its strong international brand resonance. We also forecast device sales will shift towards lower tiered Google Home Mini (currently ~55% of new Google Home devices) and estimate a lower Blended ASP. Based on industry resources, management commentary, and survey results, we forecast Google will have sold over 50M Google Home devices through 2018, and ~85M devices sold in 2019 alone. By 2021, we forecast Google can reach a global installed base of 278M Smart Speaker devices, and \$8.2B of incremental Revenue in 2021.

Exhibit 19: Google Home Financial Forecasts

| Google Home (in M)  | 2016         | 2017           | 2018           | 2019           | 2020           | 2021           |
|---------------------|--------------|----------------|----------------|----------------|----------------|----------------|
| <b>Revenue</b>      | <b>\$197</b> | <b>\$1,470</b> | <b>\$3,390</b> | <b>\$6,577</b> | <b>\$7,512</b> | <b>\$8,156</b> |
| Y/Y                 | --           | 647%           | 131%           | 94%            | 14%            | 9%             |
| Gross Margin        | 25%          | 25%            | 25%            | 25%            | 25%            | 25%            |
| <b>Gross Profit</b> | <b>\$49</b>  | <b>\$368</b>   | <b>\$847</b>   | <b>\$1,644</b> | <b>\$1,878</b> | <b>\$2,039</b> |

Source: Company Documents, RBC Capital Markets Estimates, Industry Sources



## RBC Capital Markets

Internet  
Alphabet Inc.

### Exhibit 20: RBC Google Home Estimates

|  | 2016         | 2017           | 2018           | 2019           | 2020           | 2021           |
|--|--------------|----------------|----------------|----------------|----------------|----------------|
| U.S. Internet Households (MM)                        | 109          | 110            | 111            | 112            | 113            | 114            |
| Google Home Adoption                                 | 1%           | 8%             | 23%            | 30%            | 37%            | 44%            |
| Devices Per Household                                | 1.4          | 1.6            | 1.7            | 1.8            | 1.9            | 2.0            |
| Total U.S. Google Home Devices Installed             | 2            | 14             | 43             | 60             | 79             | 100            |
| Internet Households in Google Home Intl Markets (MM) | 0            | 67             | 185            | 210            | 235            | 260            |
| Google Home Adoption                                 | 0%           | 1%             | 3%             | 18%            | 29%            | 36%            |
| Devices Per Household                                | 0.0          | 1.4            | 1.6            | 1.7            | 1.8            | 1.9            |
| Total International Google Home Devices Installed    | -            | 1              | 9              | 64             | 123            | 178            |
| Total Google Home Devices Installed                  | 1.5          | 15.0           | 52.3           | 124.8          | 202.2          | 278.3          |
| Total New Google Home Devices Sold                   | 1.5          | 13.5           | 37.3           | 72.5           | 77.4           | 76.1           |
| Replacement/ Additional Google Home Devices Sold     | 0.0          | 0.0            | 1.4            | 12.1           | 33.5           | 65.3           |
| Total Google Home Devices Sold                       | 1.5          | 13.5           | 38.7           | 84.7           | 111.0          | 141.3          |
| <b>Blended ASP</b>                                   | <b>\$129</b> | <b>\$109</b>   | <b>\$88</b>    | <b>\$78</b>    | <b>\$68</b>    | <b>\$58</b>    |
| <b>Google Home Device Revenue (Worldwide)</b>        | <b>\$197</b> | <b>\$1,470</b> | <b>\$3,390</b> | <b>\$6,577</b> | <b>\$7,512</b> | <b>\$8,156</b> |

Source: RBC Capital Markets Estimates, Company Commentary, CIRP, Statista, Government Census Data

### Exhibit 21: RBC Google Home Households Estimates

| Google Home Household Calculated        | 2018      | 2021       |
|---|-----------|------------|
| U.S. Households, 2017 est (U.S. Census) | 128       | 129        |
| % using Internet (Pew Research)         | 87%       | 88%        |
| Internet Households                     | 111       | 114        |
| Google Home (Per survey)                | 23%       | 44%        |
| Home Households in U.S.                 | 26        | 50         |
| Int'l Home Households in 2018           | 6         | 94         |
| <b>Global Google Home Households</b>    | <b>31</b> | <b>144</b> |

Source: Company Documents, RBC Capital Markets Estimates, Industry Sources



## Chromecast

Initially released in 2013, Chromecast has evolved into a streaming dongle that enables Android devices and Chrome browsers to stream video directly to a TV. Chromecasts are currently priced at \$35 for the HD version and \$69 for 4K (Chromecast Ultra). As of August 2017, Google had sold more than 55M Chromecast dongles and Chromecast built-in devices, announced during Google's Made by Google hardware event in Mountain View. Its primary competitors are Roku, Amazon Fire TV, and Apple TV.

Exhibit 22: Google Chromecasts (3<sup>rd</sup> Gen)

| Chromecast       | 2018 |
|------------------|------|
| Chromecast       | \$35 |
| Chromecast Ultra | \$69 |



Source: Company Documents & Website

Exhibit 23: Google Chromecast CNET Review

### A Holiday Gift Guide Editors' Pick

Add to Gift List +

**The Good** The super-affordable Chromecast streams Netflix, YouTube, Spotify, Pandora, HBO Now and thousands of other apps and games to your TV using an smartphone, PC, or even voice as the controller. It hides neatly behind your TV.

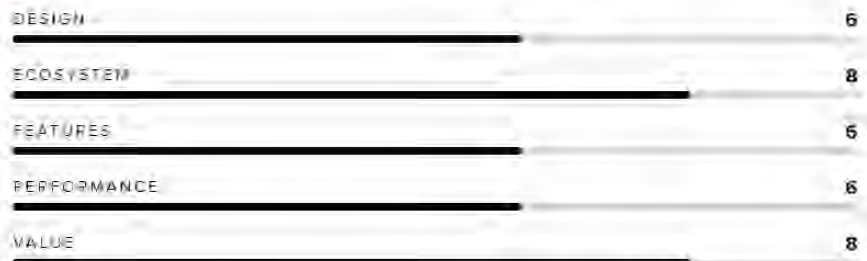
**The Bad** The lack of a dedicated remote means you always need a smartphone, tablet or PC nearby to use it. Competitors at the same price offer physical remotes and onscreen displays, which are easier to use. There still no app support for Amazon Prime Video.

**The Bottom Line** The newest version of Google Chromecast is basically identical to the old one and falls short of the budget competition from Amazon and Roku.



7.2

OVERALL



Source: CNET Review



## RBC Capital Markets

Internet  
Alphabet Inc.

Below is a table of aggregated media streaming reviews from PC Mag. Google's Chromecast Ultra ranks behind the leading Roku and Amazon streaming devices, but still garners generally positive reviews.

Exhibit 24: PC Mag Comparison of Media Streaming Devices

| Product                   | Amazon Fire TV Cube   | Amazon Fire TV Stick 4K   | Amazon Fire TV Stick With Alexa Voice Remote                                      | Roku Premiere+ (2018)   | Apple TV 4K   | Google Chromecast Ultra   | Nvidia Shield TV (2017)   | Roku Ultra (2017)   | Google Chromecast (2018)  | Roku Premiere (2018)  |
|---------------------------|---|---|---|---|---|---|---|---|---|---|
|                           |  |  |  |  |  |  |  |  |  |  |
|                           | \$69.99   | \$34.99   | \$24.99   | \$49.99   | \$199.00  | \$69.00   | \$169.00  | \$89.00   | \$35.00   | \$39.99   |
| Lowest Price              | Amazon  | Amazon  | Amazon  | Walmart   | Walmart   | Walmart   | Amazon  | Amazon  | Walmart   | Amazon  |
|                           | SEE IT  | SEE IT  | SEE IT  | SEE IT  | SEE IT  | SEE IT  | SEE IT  | SEE IT  | SEE IT  | SEE IT  |
| Editors' Rating           |  |  |  |  |  |  |   |  |  |  |
|                           | EDITORS' CHOICE   | EDITORS' CHOICE   | EDITORS' CHOICE   | EDITORS' CHOICE   |   |   |   |   |   |   |
| Best For                  | Hands-free Amazon fans  | 4K HDR cord-cutters   | Budget-minded Amazon fans   | Budget-minded cinephiles  | Apple fans  | Android users   | Hands-free Google fans  | Privacy-minded movie lovers   | Budget-minded Android users   | Budget-minded cinephiles  |
| Internal Storage          | 16 GB   | 0 GB  | 16 GB   | 0 GB  | 32 GB   | 0 GB  | 16 GB   | 0 GB  | 0 GB  | 0 GB  |
| 4K                        | ✓   | ✓   | —   | ✓   | ✓   | ✓   | ✓   | ✓   | —   | ✓   |
| HDR                       | HDR10   | Dolby Vision, HDR10   | HDR10   | HDR10   | HDR10, Dolby Vision   | Dolby Vision, HDR10   | Dolby Vision, HDR10   | HDR10   | No  | HDR10   |
| Online Content Services   | Amazon Fire TV App Store  | Amazon Fire TV App Store  | Amazon Video, Amazon Music, Amazon Fire TV App Store                              | Roku Channel Store  | tvOS  | Google Cast   | Android TV  | Roku Channel Store  | Google Cast   | Roku Channel Store  |
| Web Browser               | Yes   | Yes   | No  | No  | No  | Yes   | No  | No  | No  | No  |
| Smartphone/Tablet Control | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   | Yes   |
| Voice Control             | Amazon Alexa  | Amazon Alexa  | Amazon Alexa  | Search  | Apple Siri  | None  | Google Assistant  | Search  | Google Assistant  | Search  |

Source: PC Mag





## RBC Capital Markets

Internet  
Alphabet Inc.

Based on company remarks and our estimates, we believe Google sold 20M Chromecasts in 2016, with an ASP of \$28 and 10% gross margins. We forecast \$1.0B in Chromecast revenue in 2018 and close to \$0.1B in Gross Profit contribution. Through 2021, we forecast 30% unit sales growth through 2021, leading to 69M in Chromecast sales in 2021, \$2.4B in Chromecast revenues, and a Gross Profit of \$0.3B.

Exhibit 25: Google Chromecast Financial Forecasts

| Chromecasts (in M)  | 2016         | 2017         | 2018         | 2019           | 2020           | 2021           |
|---------------------|--------------|--------------|--------------|----------------|----------------|----------------|
| <b>Chromecasts</b>  | <b>20</b>    | <b>24</b>    | <b>31</b>    | <b>41</b>      | <b>53</b>      | <b>69</b>      |
| ASP                 | \$28         | \$31         | \$32         | \$33           | \$34           | \$35           |
| <b>Revenue</b>      | <b>\$560</b> | <b>\$744</b> | <b>\$998</b> | <b>\$1,338</b> | <b>\$1,793</b> | <b>\$2,399</b> |
| Y/Y                 | --           | 33%          | 34%          | 34%            | 34%            | 34%            |
| Gross Margin        | 10%          | 10%          | 11%          | 11%            | 11%            | 12%            |
| <b>Gross Profit</b> | <b>\$56</b>  | <b>\$74</b>  | <b>\$110</b> | <b>\$147</b>   | <b>\$197</b>   | <b>\$288</b>   |

Source: Company Documents, RBC Capital Markets Estimates, Roku Company Documents, Company Remarks



## Chromebook

Based on Gartner and our estimates, we believe there were 11.9MM Chromebooks sold in 2018. By 2021, we estimate 15.4MM Chromebooks sold. And based on our conversations with the RBC Hardware team, we believe Google receives revenue for its Chromebook licenses, unlike its Android OS. But we are not including these Revenues into our Hardware estimates as this would manifest as software/licensing revenue in Other Revenues. However, over time, Google could sell this amount of Pixelbooks, which would be considered Google Hardware but we are not currently including in our current forecasts.

Exhibit 26: Google Chromebook Estimates

| Chromebooks (in M)    | 2016           | 2017           | 2018           | 2019           | 2020            | 2021            |
|-----------------------|----------------|----------------|----------------|----------------|-----------------|-----------------|
| <b>Chromebooks</b>    | <b>9.4</b>     | <b>10.9</b>    | <b>11.9</b>    | <b>13.0</b>    | <b>14.1</b>     | <b>15.4</b>     |
| Average Selling Price | \$550          | \$601          | \$652          | \$703          | \$755           | \$808           |
| <b>Gross Revenue</b>  | <b>\$5,170</b> | <b>\$6,547</b> | <b>\$7,755</b> | <b>\$9,122</b> | <b>\$10,667</b> | <b>\$12,409</b> |
| Take Rate             | 5.0%           | 5.0%           | 5.0%           | 5.0%           | 5.0%            | 5.0%            |
| <b>Google Revenue</b> | <b>258.5</b>   | <b>327.3</b>   | <b>387.7</b>   | <b>456.1</b>   | <b>533.3</b>    | <b>620.5</b>    |
| Y/Y                   | 52%            | 27%            | 18%            | 18%            | 17%             | 16%             |

Source: RBC Capital Markets, Gartner



## Alphabet Valuation

Our \$1,400 PT and 2020 valuation framework is based on a blended average of EV/ Adj. EBITDA and GAAP P/E. We arrive at \$1,400 by applying a 13x Target Multiple on 2020 EBITDA of \$64.6B and 25x Target Multiple on 2020 GAAP EPS of \$55.44. We note that these target multiples are largely in-line with the current multiple the stock is trading on our 2018 estimates. We believe the regulatory overhang has created pressure on Google's multiple, and that the Android fine may suggest that peak regulatory risk is now in the rear view mirror. Moreover, we believe the commercialization of Waymo could be a catalyst for the stock in the near/medium term, leading to a potential rerating in GOOGL's multiple.

### Exhibit 27: GOOGL Multiples Based Valuation Methodology

(\$ in millions, except per share amounts)

|                                   |           |
|-----------------------------------|-----------|
| Current Price                     | \$1,026   |
| Shares Outstanding (MM)           | 703       |
| Current Market Cap                | \$721,285 |
| Less: Cash (incl. Non-Marketable) | \$115,716 |
| Plus: Debt                        | \$3,986   |
| Enterprise Value                  | \$609,555 |

|   |                |
|---|----------------|
| <b>Price to Earnings</b>                  | <b>2020E</b>   |
| GAAP EPS                                  | \$55.44        |
| P/E on '18 GAAP EPS                       | 24.4x          |
| P/E on '19 GAAP EPS                       | 22.1x          |
| P/E on '20 GAAP EPS                       | 18.5x          |
| Adjusted EBITDA CAGR '18-'21              | 15%            |
| <b>Target Multiple</b>                    | <b>25x</b>     |
| <b>Implied Stock Price on Forward EPS</b> | <b>\$1,386</b> |

|  |                |
|--|----------------|
| <b>EV to Adjusted EBITDA</b>                 | <b>2020E</b>   |
| Adjusted EBITDA                              | \$64,624       |
| EV/EBITDA on '18 Adjusted EBITDA             | 12.2x          |
| EV/EBITDA on '19 Adjusted EBITDA             | 10.9x          |
| EV/EBITDA on '20 Adjusted EBITDA             | 9.4x           |
| Adjusted EBITDA CAGR '18-'21                 | 15%            |
| <b>Target Multiple</b>                       | <b>13x</b>     |
| Enterprise Value                             | \$840,116      |
| Plus: YE 2019 Net Cash                       | \$121,349      |
| Equity Market Capitalization                 | \$961,465      |
| <b>Implied Stock Price on Forward EBITDA</b> | <b>\$1,367</b> |

**Target Price (Rounded)** **\$1,400**

Source: FactSet, RBC Capital Markets (priced as of December 17<sup>th</sup>, at market close)



## Valuation

Our \$1,400 PT and 2020 valuation framework is based on a blended average of EV/ Adj. EBITDA and GAAP P/E. We arrive at \$1,400 by applying a 13x Target Multiple on 2020 EBITDA of \$64.6B and 25x Target Multiple on 2020 GAAP EPS of \$55.44. We note that these target multiples are largely in-line with the current multiple the stock is trading on our 2018 estimates. We believe the regulatory overhang has created pressure on Google's multiple, and that the Android fine may suggest that peak regulatory risk is now in the rear view mirror. Moreover, we believe the commercialization of Waymo could be a catalyst for the stock in the near/medium term, leading to a potential rerating in GOOGL's multiple. Our price target and the implied return supports our Outperform rating.

## Risks to rating and price target

1) Regulatory concerns; 2) competitive risk; 3) mobile monetization; and 4) European macro exposure.

## Company description

Alphabet is a top search destination on the Web and provides a leading search marketing platform for advertisers and merchants.



# RBC Capital Markets

Internet  
Alphabet Inc.

## Alphabet - Income Statement (\$ Millions Except EPS)

|                                  | 2017A   |        |         |          | 2018E   |        |         |         | 2019E   |         |         |         |         |         |         |         |         |         |
|----------------------------------|---------|--------|---------|----------|---------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|                                  | 3/17A   | 6/17A  | 9/17A   | 12/17A   | 3/18A   | 6/18A  | 9/18A   | 12/18E  | 3/19E   | 6/19E   | 9/19E   | 12/19E  | 2016A   | 2017A   | 2018E   | 2019E   | 2020E   | 2021E   |
| <b>Total Revenue - Gross</b>     | 24,750  | 26,010 | 27,772  | 32,323   | 31,146  | 32,657 | 33,740  | 38,899  | 37,442  | 39,190  | 40,500  | 46,585  | 90,272  | 110,855 | 136,442 | 163,717 | 194,885 | 230,310 |
| <b>Total Revenue - Net</b>       | 20,121  | 20,919 | 22,270  | 25,873   | 24,858  | 26,237 | 27,158  | 31,410  | 30,224  | 31,557  | 32,596  | 37,644  | 73,479  | 89,183  | 109,663 | 132,020 | 157,825 | 187,211 |
| <b>Traffic Acquisition Costs</b> | 4,629   | 5,091  | 5,502   | 6,450    | 6,288   | 6,420  | 6,582   | 7,489   | 7,219   | 7,633   | 7,904   | 8,941   | 16,793  | 21,672  | 26,779  | 31,697  | 37,060  | 43,100  |
| <b>Operating Expense</b>         | 13,553  | 16,787 | 14,488  | 18,209   | 17,857  | 23,430 | 18,848  | 22,765  | 22,316  | 22,397  | 22,948  | 27,660  | 49,763  | 63,037  | 82,900  | 95,321  | 113,952 | 133,859 |
| Other Cost of Revenue            | 5,166   | 5,282  | 5,646   | 7,817    | 7,179   | 7,463  | 7,699   | 10,118  | 9,333   | 9,292   | 9,566   | 12,503  | 18,345  | 23,911  | 32,459  | 40,694  | 49,437  | 58,642  |
| Research & Development           | 3,942   | 4,172  | 4,205   | 4,306    | 5,039   | 5,114  | 5,232   | 5,290   | 6,187   | 6,214   | 6,345   | 6,416   | 13,948  | 16,625  | 20,675  | 25,162  | 30,080  | 35,306  |
| Sales & Marketing                | 2,644   | 2,897  | 3,042   | 4,310    | 3,604   | 3,780  | 3,849   | 5,327   | 4,473   | 4,641   | 4,717   | 6,497   | 10,485  | 12,893  | 16,560  | 20,328  | 23,985  | 28,077  |
| G&A                              | 1,801   | 1,700  | 1,595   | 1,776    | 2,035   | 2,002  | 2,068   | 2,030   | 2,323   | 2,250   | 2,319   | 2,245   | 6,985   | 6,872   | 8,135   | 9,138   | 10,450  | 11,834  |
| Stock-Based Compensation         | 2,009   | 2,003  | 1,820   | 1,847    | 2,457   | 2,413  | 2,230   | 2,230   | 2,230   | 2,230   | 2,230   | 2,230   | 6,703   | 7,679   | 9,330   | 8,920   | 9,420   | 9,920   |
| Other                            | 0       | 2,736  | 0       | 0        | 0       | 5,071  | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 2,736   | 5,071   | 0       | 0       | 0       |
| <b>Operating Income</b>          | 6,568   | 4,132  | 7,782   | 7,664    | 7,001   | 2,807  | 8,310   | 8,644   | 7,908   | 9,160   | 9,648   | 9,984   | 23,716  | 26,146  | 26,762  | 36,699  | 43,872  | 53,352  |
| <b>Non-GAAP Op Inc (ex/ 1x)</b>  | 6,568   | 6,868  | 7,782   | 7,664    | 7,001   | 7,878  | 8,310   | 8,644   | 7,908   | 9,160   | 9,648   | 9,984   | 30,419  | 36,561  | 41,163  | 45,619  | 53,292  | 63,272  |
| D&A                              | 1,503   | 1,625  | 1,761   | 2,026    | 1,986   | 2,114  | 2,355   | 2,455   | 2,519   | 2,562   | 2,604   | 2,647   | 6,144   | 6,915   | 8,910   | 10,332  | 11,332  | 12,332  |
| <b>Adjusted EBITDA</b>           | 10,080  | 10,496 | 11,363  | 11,537   | 11,444  | 12,405 | 12,895  | 13,329  | 12,656  | 13,951  | 14,482  | 14,861  | 36,563  | 43,476  | 50,073  | 55,951  | 64,624  | 75,604  |
| Interest Income And Other, Net   | 251     | 245    | 197     | 354      | 3,542   | 1,408  | 1,773   | 500     | 500     | 500     | 500     | 500     | 434     | 1,047   | 7,223   | 2,000   | 2,500   | 3,000   |
| <b>Pretax Income</b>             | 6,819   | 4,377  | 7,979   | 8,018    | 10,543  | 4,215  | 10,083  | 9,144   | 8,408   | 9,660   | 10,148  | 10,484  | 24,150  | 27,193  | 33,985  | 38,699  | 46,372  | 56,352  |
| Provision for income taxes       | 1,393   | 853    | 1,247   | 11,038   | 1,142   | 1,020  | 891     | 1,372   | 1,261   | 1,449   | 1,522   | 1,573   | 4,672   | 14,531  | 4,425   | 5,805   | 6,956   | 8,453   |
| <b>GAAP Net Income</b>           | 5,426   | 3,524  | 6,732   | (3,020)  | 9,401   | 3,195  | 9,192   | 7,773   | 7,147   | 8,211   | 8,626   | 8,911   | 19,478  | 12,662  | 29,561  | 32,894  | 39,416  | 47,899  |
| <b>Non-GAAP Net Income</b>       | 7,033   | 5,126  | 8,188   | (1,542)  | 11,367  | 5,125  | 10,976  | 9,557   | 8,931   | 9,995   | 10,410  | 10,695  | 24,031  | 18,805  | 37,025  | 40,030  | 46,952  | 55,835  |
| <b>GAAP EPS</b>                  | \$7.73  | \$5.01 | \$9.57  | (\$4.35) | \$13.33 | \$4.54 | \$13.06 | \$11.03 | \$10.12 | \$11.62 | \$12.19 | \$12.57 | \$27.88 | \$18.06 | \$41.97 | \$46.50 | \$55.44 | \$66.99 |
| <b>Non-GAAP EPS</b>              | \$10.02 | \$7.29 | \$11.64 | (\$2.22) | \$16.12 | \$7.29 | \$15.59 | \$13.56 | \$12.65 | \$14.14 | \$14.71 | \$15.09 | \$34.39 | \$26.83 | \$52.57 | \$56.59 | \$66.04 | \$78.09 |
| <b>Fully diluted shares</b>      | 702     | 704    | 704     | 695      | 705     | 703    | 704     | 705     | 706     | 707     | 708     | 709     | 699     | 701     | 704     | 707     | 711     | 715     |
| <b>Growth Rate</b>               |         |        |         |          |         |        |         |         |         |         |         |         |         |         |         |         |         |         |
| Gross Revenue (Y/Y)              | 22%     | 21%    | 24%     | 24%      | 26%     | 26%    | 21%     | 20%     | 20%     | 20%     | 20%     | 20%     | 20%     | 23%     | 23%     | 20%     | 19%     | 18%     |
| Gross Revenue (Q/Q)              | -5%     | 5%     | 7%      | 16%      | -4%     | 5%     | 3%      | 15%     | -4%     | 5%      | 3%      | 15%     | --      | --      | --      | --      | --      | --      |
| Net Revenue (Y/Y)                | 22%     | 19%    | 22%     | 22%      | 24%     | 25%    | 22%     | 21%     | 22%     | 20%     | 20%     | 20%     | 21%     | 21%     | 23%     | 20%     | 20%     | 19%     |
| Net Revenue (Q/Q)                | -5%     | 4%     | 6%      | 16%      | -4%     | 6%     | 4%      | 16%     | -4%     | 4%      | 3%      | 15%     | --      | --      | --      | --      | --      | --      |
| Opex (Y/Y)                       | 22%     | 45%    | 16%     | 25%      | 32%     | 40%    | 30%     | 25%     | -4%     | 22%     | 22%     | 22%     | 21%     | 27%     | 32%     | 15%     | 20%     | 17%     |
| Adjusted EBITDA (Y/Y)            | 23%     | 17%    | 23%     | 13%      | 14%     | 18%    | 13%     | 16%     | 11%     | 12%     | 12%     | 11%     | 23%     | 19%     | 15%     | 12%     | 16%     | 17%     |
| Non-GAAP Operating Inc. (Y/Y)    | -4%     | -8%    | 2%      | -10%     | 7%      | 15%    | 7%      | 13%     | 13%     | 16%     | 16%     | 15%     | 24%     | 20%     | 13%     | 11%     | 17%     | 19%     |
| GAAP EPS (Y/Y)                   | 28%     | -28%   | 32%     | -157%    | 72%     | -9%    | 37%     | -354%   | -24%    | 156%    | -7%     | 14%     | 18%     | -35%    | 132%    | 11%     | 19%     | 21%     |
| PF EPS (Y/Y)                     | 33%     | -13%   | 28%     | -124%    | 61%     | 0%     | 34%     | -711%   | -22%    | 94%     | -6%     | 11%     | 16%     | -22%    | 96%     | 8%      | 17%     | 18%     |
| <b>Margin Analysis</b>           |         |        |         |          |         |        |         |         |         |         |         |         |         |         |         |         |         |         |
| TAC                              | 18.7%   | 19.6%  | 19.8%   | 20.0%    | 20.2%   | 19.7%  | 19.5%   | 19.3%   | 19.3%   | 19.5%   | 19.5%   | 19.2%   | 18.6%   | 19.5%   | 19.6%   | 19.4%   | 19.0%   | 18.7%   |
| GAAP Operating Margin - Net      | 32.6%   | 32.8%  | 34.9%   | 29.6%    | 28.2%   | 10.7%  | 30.6%   | 27.5%   | 26.2%   | 29.0%   | 29.6%   | 26.5%   | 32.3%   | 29.3%   | 24.4%   | 27.8%   | 27.8%   | 28.5%   |
| GAAP Operating Margin - Gross    | 26.5%   | 15.9%  | 28.0%   | 23.7%    | 22.5%   | 8.6%   | 24.6%   | 22.2%   | 21.1%   | 23.4%   | 23.8%   | 21.4%   | 26.3%   | 23.6%   | 19.6%   | 22.4%   | 22.5%   | 23.2%   |
| Non-GAAP Operating Margin - Net  | 32.6%   | 32.8%  | 34.9%   | 29.6%    | 28.2%   | 30.0%  | 30.6%   | 27.5%   | 26.2%   | 29.0%   | 29.6%   | 26.5%   | 41.4%   | 41.0%   | 37.5%   | 34.6%   | 33.8%   | 33.8%   |
| Y/Y Change                       | -8.7%   | -9.80% | -6.80%  | -10.37%  | -4.48%  | -2.81% | -4.35%  | -2.10%  | -2.00%  | -1.00%  | -1.00%  | -1.00%  | 0.90%   | -0.40%  | -3.46%  | -2.98%  | -0.79%  | 0.03%   |
| Tax Rate                         | 20.4%   | 19.5%  | 15.6%   | 137.7%   | 10.8%   | 24.2%  | 8.8%    | 15.0%   | 15.0%   | 15.0%   | 15.0%   | 15.0%   | 19.3%   | 53.4%   | 13.0%   | 15.0%   | 15.0%   | 15.0%   |

Source: RBC Capital Markets estimates, Company Reports





## Required disclosures

### Conflicts disclosures

The analyst(s) responsible for preparing this research report received compensation that is based upon various factors, including total revenues of the member companies of RBC Capital Markets and its affiliates, a portion of which are or have been generated by investment banking activities of the member companies of RBC Capital Markets and its affiliates.

Please note that current conflicts disclosures may differ from those as of the publication date on, and as set forth in, this report. To access current conflicts disclosures, clients should refer to <https://www.rbccm.com/GLDisclosure/PublicWeb/DisclosureLookup.aspx?entityId=1> or send a request to RBC CM Research Publishing, P.O. Box 50, 200 Bay Street, Royal Bank Plaza, 29th Floor, South Tower, Toronto, Ontario M5J 2W7.

RBC Capital Markets, LLC makes a market in the securities of Alphabet Inc..

RBC Capital Markets has provided Alphabet Inc. with non-securities services in the past 12 months.

RBC Capital Markets, LLC makes a market in the securities of Amazon.com, Inc..

A member company of RBC Capital Markets or one of its affiliates received compensation for products or services other than investment banking services from Amazon.com, Inc. during the past 12 months. During this time, a member company of RBC Capital Markets or one of its affiliates provided non-securities services to Amazon.com, Inc..

RBC Capital Markets is currently providing Amazon.com, Inc. with non-securities services.

### Explanation of RBC Capital Markets Equity rating system

An analyst's 'sector' is the universe of companies for which the analyst provides research coverage. Accordingly, the rating assigned to a particular stock represents solely the analyst's view of how that stock will perform over the next 12 months relative to the analyst's sector average.

#### Ratings

**Top Pick (TP):** Represents analyst's best idea in the sector; expected to provide significant absolute total return over 12 months with a favorable risk-reward ratio.

**Outperform (O):** Expected to materially outperform sector average over 12 months.

**Sector Perform (SP):** Returns expected to be in line with sector average over 12 months.

**Underperform (U):** Returns expected to be materially below sector average over 12 months.

**Restricted (R):** RBC policy precludes certain types of communications, including an investment recommendation, when RBC is acting as an advisor in certain merger or other strategic transactions and in certain other circumstances.

**Not Rated (NR):** The rating, price targets and estimates have been removed due to applicable legal, regulatory or policy constraints which may include when RBC Capital Markets is acting in an advisory capacity involving the company.

#### Risk Rating

The **Speculative** risk rating reflects a security's lower level of financial or operating predictability, illiquid share trading volumes, high balance sheet leverage, or limited operating history that result in a higher expectation of financial and/or stock price volatility.



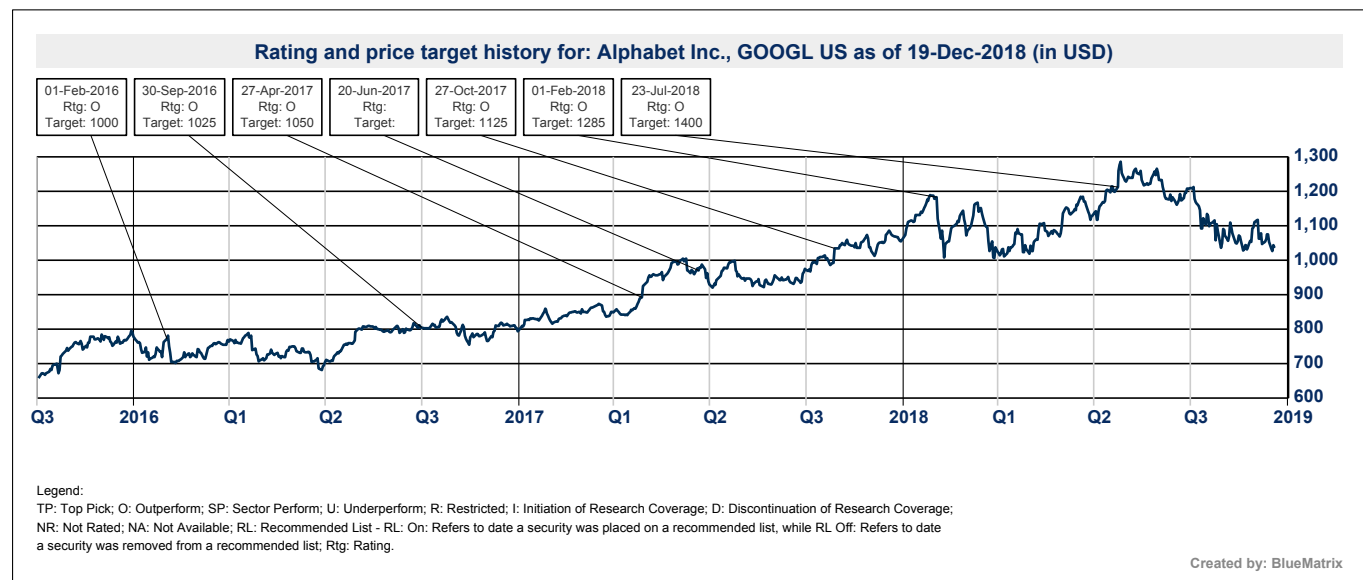
## RBC Capital Markets

Internet  
Alphabet Inc.

### Distribution of ratings

For the purpose of ratings distributions, regulatory rules require member firms to assign ratings to one of three rating categories - Buy, Hold/Neutral, or Sell - regardless of a firm's own rating categories. Although RBC Capital Markets' ratings of Top Pick/Outperform, Sector Perform, and Underperform most closely correspond to Buy, Hold/Neutral and Sell, respectively, the meanings are not the same because our ratings are determined on a relative basis.

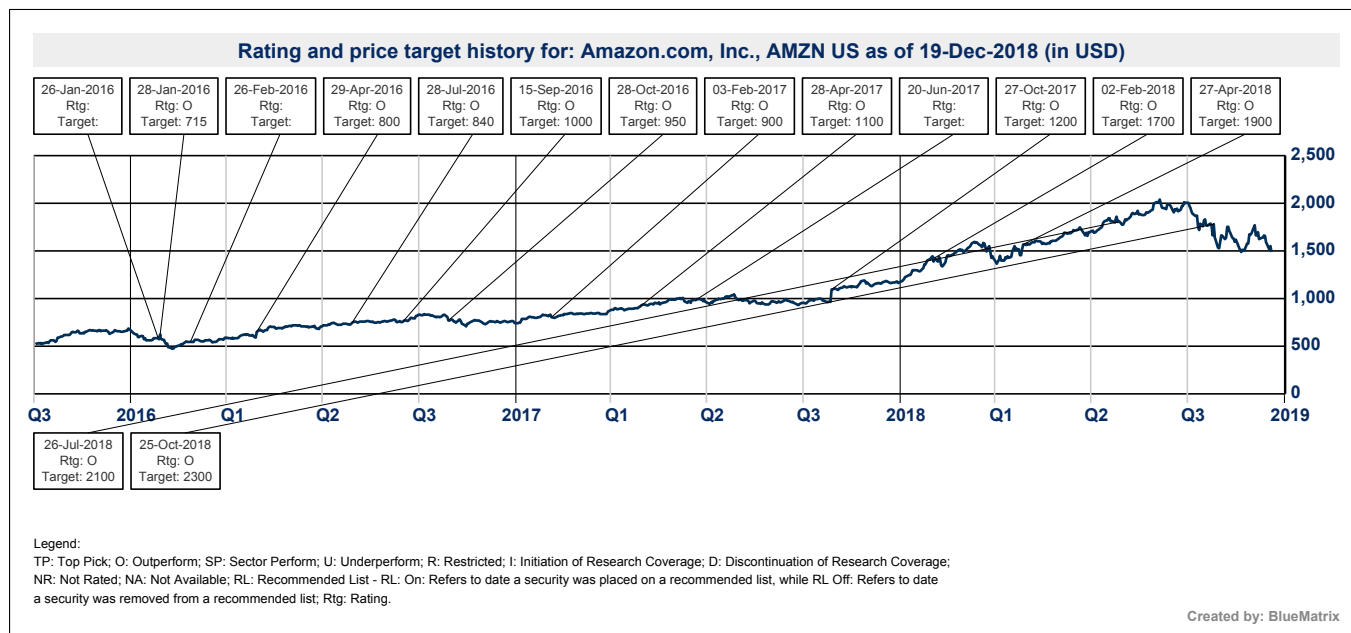
| Distribution of ratings<br>RBC Capital Markets, Equity Research<br>As of 30-Sep-2018 |       |         |  |         |
|--|-------|---------|--|---------|
| Rating   | Count | Percent | Investment Banking<br>Serv./Past 12 Mos. |         |
|  |       |         | Count                                    | Percent |
| BUY [Top Pick & Outperform]  | 859   | 54.33   | 251                                      | 29.22   |
| HOLD [Sector Perform]  | 646   | 40.86   | 125                                      | 19.35   |
| SELL [Underperform]  | 76    | 4.81    | 5  | 6.58    |





## RBC Capital Markets

Internet  
Alphabet Inc.



References to a Recommended List in the recommendation history chart may include one or more recommended lists or model portfolios maintained by RBC Wealth Management or one of its affiliates. RBC Wealth Management recommended lists include the Guided Portfolio: Prime Income (RL 6), the Guided Portfolio: Dividend Growth (RL 8), the Guided Portfolio: ADR (RL 10), and the Guided Portfolio: All Cap Growth (RL 12), and former lists called the Guided Portfolio: Large Cap (RL 7), the Guided Portfolio: Midcap 111 (RL 9), and the Guided Portfolio: Global Equity (U.S.) (RL 11). RBC Capital Markets recommended lists include the Strategy Focus List and the Fundamental Equity Weightings (FEW) portfolios. The abbreviation 'RL On' means the date a security was placed on a Recommended List. The abbreviation 'RL Off' means the date a security was removed from a Recommended List.

## Equity valuation and risks

For valuation methods used to determine, and risks that may impede achievement of, price targets for covered companies, please see the most recent company-specific research report at <https://www.rbcinsightresearch.com> or send a request to RBC Capital Markets Research Publishing, P.O. Box 50, 200 Bay Street, Royal Bank Plaza, 29th Floor, South Tower, Toronto, Ontario M5J 2W7.

### Alphabet Inc.

#### Valuation

Our \$1,400 PT and 2020 valuation framework is based on a blended average of EV/ Adj. EBITDA and GAAP P/E. We arrive at \$1,400 by applying a 13x Target Multiple on 2020 EBITDA of \$64.6B and 25x Target Multiple on 2020 GAAP EPS of \$55.44. We note that these target multiples are largely in-line with the current multiple the stock is trading on our 2018 estimates. We believe the regulatory overhang has created pressure on Google's multiple, and that the Android fine may suggest that peak regulatory risk is now in the rear view mirror. Moreover, we believe the commercialization of Waymo could be a catalyst for the stock in the near/medium term, leading to a potential rerating in GOOGL's multiple. Our price target and the implied return supports our Outperform rating.

#### Risks to rating and price target

1) Regulatory concerns; 2) competitive risk; 3) mobile monetization; and 4) European macro exposure.

### Amazon.com, Inc.

#### Valuation

- Our PT of \$2,300 is based on '20E EV/Adjusted EBITDA methodology. Our EV/EBITDA Valuation framework applies a 20x Target Multiple to our '20 Adjusted EBITDA estimate of \$55B to arrive at a \$2,300 value. Our estimates imply a 3-year 28% EBITDA



CAGR for AMZN, which we believe reasonably supports a Target Multiple of 20x on a growth-adjusted basis. Our price target supports our Outperform rating.

#### Risks to rating and price target

- Increase in competitive intensity either from online competitors or online segments of traditional retailers.
- Additional gross margin pressure from rising oil prices, operating margin pressure from continued investments in technology, and potential for additional international expansion.
- Decrease in e-commerce activity by consumers.

#### Conflicts policy

RBC Capital Markets Policy for Managing Conflicts of Interest in Relation to Investment Research is available from us on request. To access our current policy, clients should refer to

<https://www.rbccm.com/global/file-414164.pdf>

or send a request to RBC Capital Markets Research Publishing, P.O. Box 50, 200 Bay Street, Royal Bank Plaza, 29th Floor, South Tower, Toronto, Ontario M5J 2W7. We reserve the right to amend or supplement this policy at any time.

#### Dissemination of research and short-term trade ideas

RBC Capital Markets endeavors to make all reasonable efforts to provide research simultaneously to all eligible clients, having regard to local time zones in overseas jurisdictions. RBC Capital Markets' equity research is posted to our proprietary website to ensure eligible clients receive coverage initiations and changes in ratings, targets and opinions in a timely manner. Additional distribution may be done by the sales personnel via email, fax, or other electronic means, or regular mail. Clients may also receive our research via third party vendors. RBC Capital Markets also provides eligible clients with access to SPARC on the Firms proprietary INSIGHT website, via email and via third-party vendors. SPARC contains market color and commentary regarding subject companies on which the Firm currently provides equity research coverage. Research Analysts may, from time to time, include short-term trade ideas in research reports and / or in SPARC. A short-term trade idea offers a short-term view on how a security may trade, based on market and trading events, and the resulting trading opportunity that may be available. A short-term trade idea may differ from the price targets and recommendations in our published research reports reflecting the research analyst's views of the longer-term (one year) prospects of the subject company, as a result of the differing time horizons, methodologies and/or other factors. Thus, it is possible that a subject company's common equity that is considered a long-term 'Sector Perform' or even an 'Underperform' might present a short-term buying opportunity as a result of temporary selling pressure in the market; conversely, a subject company's common equity rated a long-term 'Outperform' could be considered susceptible to a short-term downward price correction. Short-term trade ideas are not ratings, nor are they part of any ratings system, and the firm generally does not intend, nor undertakes any obligation, to maintain or update short-term trade ideas. Short-term trade ideas may not be suitable for all investors and have not been tailored to individual investor circumstances and objectives, and investors should make their own independent decisions regarding any securities or strategies discussed herein. Please contact your investment advisor or institutional salesperson for more information regarding RBC Capital Markets' research.

For a list of all recommendations on the company that were disseminated during the prior 12-month period, please click on the following link: <https://rbcnew.bluematrix.com/sellside/MAR.action>

The 12 month history of SPARCs can be viewed at <https://www.rbcinsightresearch.com>.

#### Analyst certification

All of the views expressed in this report accurately reflect the personal views of the responsible analyst(s) about any and all of the subject securities or issuers. No part of the compensation of the responsible analyst(s) named herein is, or will be, directly or indirectly, related to the specific recommendations or views expressed by the responsible analyst(s) in this report.

#### Third-party-disclaimers

The Global Industry Classification Standard ("GICS") was developed by and is the exclusive property and a service mark of MSCI Inc. ("MSCI") and Standard & Poor's Financial Services LLC ("S&P") and is licensed for use by RBC. Neither MSCI, S&P, nor any other party involved in making or compiling the GICS or any GICS classifications makes any express or implied warranties or representations with respect to such standard or classification (or the results to be obtained by the use thereof), and all such parties hereby expressly disclaim all warranties of originality, accuracy, completeness, merchantability and fitness for a particular purpose with respect to any of such standard or classification. Without limiting any of the foregoing, in no event shall MSCI, S&P, any of their affiliates or any third party involved in making or compiling the GICS or any GICS classifications have any liability for any direct, indirect, special, punitive, consequential or any other damages (including lost profits) even if notified of the possibility of such damages.

References herein to "LIBOR", "LIBO Rate", "L" or other LIBOR abbreviations means the London interbank offered rate as administered by ICE Benchmark Administration (or any other person that takes over the administration of such rate).


**RBC Capital Markets**

 Internet  
Alphabet Inc.

## Disclaimer

RBC Capital Markets is the business name used by certain branches and subsidiaries of the Royal Bank of Canada, including RBC Dominion Securities Inc., RBC Capital Markets, LLC, RBC Europe Limited, Royal Bank of Canada, Hong Kong Branch and Royal Bank of Canada, Sydney Branch. The information contained in this report has been compiled by RBC Capital Markets from sources believed to be reliable, but no representation or warranty, express or implied, is made by Royal Bank of Canada, RBC Capital Markets, its affiliates or any other person as to its accuracy, completeness or correctness. All opinions and estimates contained in this report constitute RBC Capital Markets' judgement as of the date of this report, are subject to change without notice and are provided in good faith but without legal responsibility. Nothing in this report constitutes legal, accounting or tax advice or individually tailored investment advice. This material is prepared for general circulation to clients and has been prepared without regard to the individual financial circumstances and objectives of persons who receive it. The investments or services contained in this report may not be suitable for you and it is recommended that you consult an independent investment advisor if you are in doubt about the suitability of such investments or services. This report is not an offer to sell or a solicitation of an offer to buy any securities. Past performance is not a guide to future performance, future returns are not guaranteed, and a loss of original capital may occur. RBC Capital Markets research analyst compensation is based in part on the overall profitability of RBC Capital Markets, which includes profits attributable to investment banking revenues. Every province in Canada, state in the U.S., and most countries throughout the world have their own laws regulating the types of securities and other investment products which may be offered to their residents, as well as the process for doing so. As a result, the securities discussed in this report may not be eligible for sale in some jurisdictions. RBC Capital Markets may be restricted from publishing research reports, from time to time, due to regulatory restrictions and/ or internal compliance policies. If this is the case, the latest published research reports available to clients may not reflect recent material changes in the applicable industry and/or applicable subject companies. RBC Capital Markets research reports are current only as of the date set forth on the research reports. This report is not, and under no circumstances should be construed as, a solicitation to act as securities broker or dealer in any jurisdiction by any person or company that is not legally permitted to carry on the business of a securities broker or dealer in that jurisdiction. To the full extent permitted by law neither RBC Capital Markets nor any of its affiliates, nor any other person, accepts any liability whatsoever for any direct or consequential loss arising from any use of this report or the information contained herein. No matter contained in this document may be reproduced or copied by any means without the prior consent of RBC Capital Markets.

Additional information is available on request.

### To U.S. Residents:

This publication has been approved by RBC Capital Markets, LLC (member FINRA, NYSE, SIPC), which is a U.S. registered broker-dealer and which accepts responsibility for this report and its dissemination in the United States. Any U.S. recipient of this report that is not a registered broker-dealer or a bank acting in a broker or dealer capacity and that wishes further information regarding, or to effect any transaction in, any of the securities discussed in this report, should contact and place orders with RBC Capital Markets, LLC.

### To Canadian Residents:

This publication has been approved by RBC Dominion Securities Inc. (member IIROC). Any Canadian recipient of this report that is not a Designated Institution in Ontario, an Accredited Investor in British Columbia or Alberta or a Sophisticated Purchaser in Quebec (or similar permitted purchaser in any other province) and that wishes further information regarding, or to effect any transaction in, any of the securities discussed in this report should contact and place orders with RBC Dominion Securities Inc., which, without in any way limiting the foregoing, accepts responsibility for this report and its dissemination in Canada.

### To U.K. Residents:

This publication has been approved by RBC Europe Limited ('RBCEL') which is authorized by the Prudential Regulation Authority and regulated by the Financial Conduct Authority ('FCA') and the Prudential Regulation Authority, in connection with its distribution in the United Kingdom. This material is not for general distribution in the United Kingdom to retail clients, as defined under the rules of the FCA. RBCEL accepts responsibility for this report and its dissemination in the United Kingdom.

### To German Residents:

This material is distributed in Germany by RBC Europe Limited, Frankfurt Branch which is regulated by the Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin).

### To Persons Receiving This Advice in Australia:

This material has been distributed in Australia by Royal Bank of Canada - Sydney Branch (ABN 86 076 940 880, AFSL No. 246521). This material has been prepared for general circulation and does not take into account the objectives, financial situation or needs of any recipient. Accordingly, any recipient should, before acting on this material, consider the appropriateness of this material having regard to their objectives, financial situation and needs. If this material relates to the acquisition or possible acquisition of a particular financial product, a recipient in Australia should obtain any relevant disclosure document prepared in respect of that product and consider that document before making any decision about whether to acquire the product. This research report is not for retail investors as defined in section 761G of the Corporations Act.

### To Hong Kong Residents:

This publication is distributed in Hong Kong by Royal Bank of Canada, Hong Kong Branch, which is regulated by the Hong Kong Monetary Authority and the Securities and Futures Commission ('SFC'), RBC Investment Services (Asia) Limited and RBC Investment Management (Asia) Limited, both entities are regulated by the SFC. Financial Services provided to Australia: Financial services may be provided in Australia in accordance with applicable law. Financial services provided by the Royal Bank of Canada, Hong Kong Branch are provided pursuant to the Royal Bank of Canada's Australian Financial Services Licence ('AFSL') (No. 246521.)

### To Singapore Residents:

This publication is distributed in Singapore by the Royal Bank of Canada, Singapore Branch, a registered entity licensed by the Monetary Authority of Singapore. This material has been prepared for general circulation and does not take into account the objectives, financial situation, or needs of any recipient. You are advised to seek independent advice from a financial adviser before purchasing any product. If you do not obtain independent advice, you should consider whether the product is suitable for you. Past performance is not indicative of future performance. If you have any questions related to this publication, please contact the Royal Bank of Canada, Singapore Branch. Royal Bank of Canada, Singapore Branch accepts responsibility for this report and its dissemination in Singapore.

### To Japanese Residents:

Unless otherwise exempted by Japanese law, this publication is distributed in Japan by or through RBC Capital Markets (Japan) Ltd. which is a Financial Instruments Firm registered with the Kanto Local Financial Bureau (Registered number 203) and a member of the Japan Securities Dealers Association ("JSDA").

® Registered trademark of Royal Bank of Canada. RBC Capital Markets is a trademark of Royal Bank of Canada. Used under license.

Copyright © RBC Capital Markets, LLC 2018 - Member SIPC

Copyright © RBC Dominion Securities Inc. 2018 - Member Canadian Investor Protection Fund





## RBC Capital Markets

Internet  
Alphabet Inc.

Copyright © RBC Europe Limited 2018  
Copyright © Royal Bank of Canada 2018  
All rights reserved